NORTHWEST INDIAN COLLEGE

Group 1 Recommendations

1. Use guided inquiry to create a focused and safe environment for collaboration.

We did engage in guided inquiry and it was part of the process of collaboration, but it was not the only mechanism we used to create a safe environment. We did choose processes and protocols that were meant to create a safe environment and we did solicit participation from all the faculty to participate in our FIG meetings, and we actively asked all the people who participated to contribute to the conversation.

1. The inquiry process
   1. starts with a targeted question around student learning.
   2. Iteratively gathers and collects evidence (possibly with a protocol) through activities such as FIGs, CATS, classroom exchanges and common assessments.
   3. Results in ongoing changing practice.

We wrote a common assessment that was meant to help us gauge student imderstanding, we went through several rounds of looking at evidence of student work and revising the assessment itself to make the directions clearer and to provide more opportunities for students to demonstrate their reasoning. We are not sure to what extent this resulted in specific changes in day-to-day classroom practice in every classroom.

We also engaged in classroom exchanges that were based around questions about student learning and were useful for both the observer and the observed faculty member to reflect on and change practice.

Group 2 Recommendations

1. Departmental investment in creating a curriculum which supports deeper student understanding: Faculty take control of curriculum either by re-examining course learning outcomes or using backwards design – this process is not dictated by textbook content or other external forces but by what we *really* want students to understand. Faculty must have a willingness to rethink or move away from the traditional curriculum. This process allows for deeper learning experiences in the classroom and a shift in the role of faculty from lecturer to facilitator. Students explaining their mathematical thinking becomes a powerful learning activity.

We definitely engaged in a process of calling into question teaching something “because it is in the book” or “because this is how it is taught elsewhere”. We intentionally reduced the scope of the material in the dev ed algebra classes, eliminating subjects that seemed superfluous or unnecessarily difficult with the intention of spending more time on subjects that seem more central.

The process of changing the curriculum made it easier to make this shift from lecturer to facilitator, because it allows us to dig deeper into things with students. But we made the shift as a result of engaging with each other and with MEC courses and materials.

1. Proactive leadership in the (campus) community promoting math literacy: Math faculty should be actively engaged in shaping the campus cultural perception of mathematics. Specifically, faculty should advocate the fact that no one is born “bad at math” and lead a conversation that challenges the conventional wisdom regarding what math is and how it is learned.

That’s us. We have this conversation with the students at the beginning of each class, we led a conversation about “being bad at math” with the other faculty at the main campus as a result of some comments made by other faculty.

1. *Provide interested instructors at all levels (adjuncts and FT) with time, space, and support to experiment (resulting in either success or failure) without fear of repercussion.*

Group 3 Recommendations

1) Now we use Formative Assessments in the classroom to frequently gain information about student understanding and we use that information to decide what to do next as teachers. Formative Assessments include, but are not limited to: common cross-course and cross-section questions, group quizzes/tests, multiple drafts of complex tasks, CATS, self-assessment.

Yes, we do this often (especially CATs) and sometimes the result of the CATs changes the direction of that days’ lesson plan.

2) As the use of Formative Assessment moves from educators tinkering in isolation to a visible part of our collective practice there is a noticeable shift in the adaptive capacity of a department to help students be successful. The visibility comes through participation in structured FIGS, formal lesson study, departmental initiatives using evidence-based practices, and state-wide retreats.

We haven’t had such a rich experience as a department looking at formative assessments together (given logistical difficulties) though we have started to and hope to deepen this practice. On the main campus this has been more true and it has resulted in some dramatic shifts in the way we teach about square roots, for example.

Group 4 Recommendations

1. Effective tasks were open ended, not listed with a,b,c,d to lead to the answer. Just ask the question and allow students to struggle in the practice of real problem solving. These require training, experimentation, reflection and support to create.

We agree. “open-ended” tasks that “walk” students through a series of steps do not produce understanding, but a task that asks students to make sense of something and that is open to various entry points and paths and end results can produce rich classroom discussion. We are unclear about the last sentence: we THINK it means that faculty need training in knowing what questions to ask, foster students discussion, and so on.

2) A skilled facilitator is clear on their goals/outcomes beyond math skills, sets expectations for process and frustration in class, engages each student, guides the inquiry but does not give answers, and encourages productive struggle. Requires training, experimentation, reflection, and support.

We agree that these are characteristics of a skilled facilitator of classroom discussion, and we hope to get more support for the rest of our faculty to gain those skills.

3) To promote contextualized tasks, adjust course outcomes and assessments to encompass the demands of contextualized tasks and real life applications. These outcomes can't just be math procedures, but rather the thinking skills to employ the math skills that they've learned in the real world.

We DID change the course outcomes to promote the use of contextrualized tasks, but on its own this would not have meant much, had we not had a parallel conversation about these tasks.

Group 5 Recommendations

1. Reallocate classroom time to make space to shift faculty role to coach from answer-machine, encourage multiple representations and strategies, and develop students’ abilities to articulate math.

CATs and removing material from the curriculum has been instrumental in allowing us to do that,

1. Department-wide collaboration (such as faculty inquiry groups, exchanges and shared activity development) which enables the design of new ways to draw out student thinking, reasoning and sense making.

Yes. This isn’t really a sentence with a subject and object.

1. Explore and embrace research on theories of student learning with time and framework for discussion.

Academic research has not been a central part of our group process, though we have had articles that some of us read in the background.